Space Weather Forecast

Issued on Wednesday, 22 November 2023 at 01:28 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of R1 Radio Blackouts throughout. Chance of G1 Geomagnetic Storms, day 1 and day 4 (22 Nov and 25 Nov).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low activity has been observed with only C-class flares, the largest from a large spot in the northeast. There are currently ten sunspot groups on the disc, the majority of which are located in the eastern solar hemisphere. The aforementioned spot in the northeast is surrounded by several simple peripheral spots and has grown recently, increasing in length. The other notable spot is in the southeast, it is magnetically complex, with a delta spot present. All other spots are simple and stable at present. No Earth-directed CMEs observed in the past 24 hours.

Solar Wind / Geomagnetic Activity: Solar wind parameters have been indicative of a connection to a coronal hole high speed stream. Wind speeds have risen erratically from background to slightly elevated. The interplanetary magnetic field was predominantly moderate, peaking at 21/2218 UTC. The important north-south component had three periods of consistently moderately negative between 21/0600-0730, 21/1200-1345 and 21/1845-2200 UTC. The net result of the above solar wind parameters was largely Unsettled to Active geomagnetic activity.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: There is a daily Chance of Moderate class flares, mainly from current eastern solar hemisphere sunspot regions.

Solar Wind / Geomagnetic Activity: No Earth-directed coronal mass ejections feature in the forecast. Earth is currently connected to a coronal hole high speed stream. Wind speeds could become elevated before easing later on day 1 (22 Nov) back to slightly elevated or background. No further enhancements expected until the arrival of another coronal hole later on day 4 (25 Nov).

Unsettled to Active with a Chance of G1/Minor Storms expected through the first half of Day 1 (22 Nov), before becoming largely Quiet to Unsettled later in he day. Quiet Geomagnetic activity is then expected to dominate through days 2-4 (23-25 Nov) before the arrival of a coronal hole later on day 4 (25 Nov), bringing a chance of G1/Minor Storm intervals to end the period.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2023. All Rights Reserved.

Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	40	5	1	30
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	40	40	40	40
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2023. All Rights Reserved.